

**Krishna Kishore Osuri**

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S/o. O. Pullaiah,  
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### **Qualification:**

#### **P. hD in Atmospheric Science**

- Title: Numerical prediction of tropical cyclones over the North Indian Ocean: Impact of 3DVAR mesoscale data assimilation
- Andhra University, Visakhapatnam, India
- Year of completion: 2012

#### **Master of Technology in Atmospheric Sciences (M.Tech)**

- Andhra University, Visakhapatnam, India.
- Percentage Marks: **79%** (First Class with Distinction)
- Year of completion: 2006

#### **Master of Science in Meteorology (M.Sc)**

- Andhra University, Visakhapatnam, India.
- Percentage Marks: **70.7 %**
- **Awarded Dr. D.W. Desai Gold medal [Topper in the Andhra University]**
- Year of completion: 2004

#### **Bachelor of Science (Physics, Maths, Chemistry)**

- C.S.R. Sarma College, Ongole, Andhra Pradesh, India
- Percentage Marks: **85 %**
- Year of completion: 2002

#### **Intermediate (Physics, Maths, Chemistry)**

- A.K.V.K. Jr. College, Ongole, Andhra Pradesh, India
- Percentage Marks: **82 %**
- Year of completion: 1999

#### **S.S.C**

- G.V.S. High School, Ongole, Andhra Pradesh, India
- Percentage Marks: **80 %**
- Year of completion: 1997

### **Awards**

1. Dr. D. W. Desai Gold Medal and Sri N. Malanchathen Philip Memorial Prize from Andhra University for the year 2004 (University topper in M.Sc Meteorology).

### **Research Interests:**

- Numerical weather prediction of extreme weather events like tropical cyclones, severe thunderstorms, monsoon depressions etc.
- Preparing high resolution reanalysis by assimilating different sources of observational data into model initial condition/background field for improved predictions of extreme weather events.
- Understanding the role of representation of land surface processes in weather forecasting.
- Land data assimilation for better land surface forcing to numerical models.
- Climate studies on extreme weather events

### **Work Experience:**

- I worked as a JRF in Centre for Atmospheric Sciences (CAS), Indian Institute of Technology (IIT), Delhi, India for the period 2nd May 2006 to 12 October 2006.
- I have worked as Project Associate in CAS, IIT Delhi, India for the period 13 October 2006 to 8 Nov 2012.
- I have been working as Project Scientist in CAS, IIT Delhi, India for the period 9 November 2012 to 22 October 2013.
- I am working as Sr. Project Scientist in SEOCS, IIT Bhubaneswar starting from 23 October 2013 to 26 July 2015.

### **Professional Recognitions:**

- Visiting scientist to Hurricane Research Division (HRD), Atlantic Oceanic Meteorological Laboratory (AOML), NOAA and Jet Propulsion Laboratory (JPL), NASA, USA, 12 January – 28 June 2014
- Resource person to an International Autumn course on “Building Resilience to Climate Change- Autumn 2014” organized by UN-CECAR, United Nations University, Japan, 14 – 31 October 2014.
- Visiting scientist to Department of Earth and Atmospheric Sciences, Purdue University for six months, to work on High resolution Land Data Assimilation System and its implementation for Indian domain, 15 April – 15 October 2011.
- Resource scientist for SAARC Meteorological Regional Centre (SMRC) workshop on “Heavy Rainfall Forecasts by NWP Model and its Validation over SAARC Region” during 15-17 May 2012, held in Thimpu, Bhutan.
- Resource scientist to Department of Meteorology (DoM) scientists, Sri Lanka, to provide “WRF Training for DOM scientists on 26 – 29 January 2012 in Colombo, Sri Lanka.
- Resource scientist to provide training on “DWR data assimilation within the frame work of ARW model” to Indonesia Meteorology scientists during 24 November – 04 December 2010, conducted by CAS, IIT Delhi, at IIT Delhi, India

### **Collaborations:**

- Indian Institute of Technology, Delhi
- Andhra University, Visakhapatnam
- India Meteorological Department, Delhi
- National Center for Medium Range Weather Forecast, Noida, U.P.
- NRSC, Hyderabad
- Purdue University, USA
- Hurricane Research Division, AOML, NOAA, USA
- NCEP, USA
- Jet Propulsion Laboratory, NASA, USA

### **Research papers Published in peer reviewed journals**

1. Mohanty, U.C., S. Pattanayak, A.J. Litta, **Krishna K. Osuri** and A. Routray, 2009: Simulation of extreme weather events over Indian region with the advancement of NWP systems, **Mausam**, 33-58.
2. Mohanty U.C., S. Pattanayak, **Krishna K. Osuri**, 2010: Changes in frequency and intensity of tropical cyclones over Indian seas in a warming environment. **Disaster Development**, 4, 53–77.
3. Routray, A., U.C. Mohanty, D. Niyogi, S. R. H. Rizvi, **Krishna K. Osuri**, 2010: Simulation of Heavy Rainfall Events over Indian Monsoon Region using WRF-3DVAR Data Assimilation System, **Meteorology and Atmospheric Physics**. 106, 107-125.
4. Routray, A., U.C. Mohanty, S. R. H. Rizvi, D. Niyogi, **Krishna K. Osuri** and D. Pradhan 2010: Impact of Doppler Weather Radar Data on Simulation of Indian Monsoon Depressions, **Quarterly Journal of Royal Meteorological Society**, 136, 1836-1850.
5. Mohanty, U.C., **Krishna K. Osuri**, A. Routray, M. Mohapatra and S. Pattanayak 2010: Simulation of Bay of Bengal tropical cyclones with WRF Modeling system: Impact of Initial Value and Boundary Conditions, **Marine Geodesy**, 33, 294 – 314.
6. **Osuri Krishna K.**, U.C. Mohanty, A. Routray, Makarand A. Kulkarni and M. Mohapatra, 2012: Sensitivity of physical parameterization schemes of WRF model for the simulation of Indian seas tropical cyclones, **Natural Hazards**, 63, 1337–1359, DOI 10.1007/s11069-011-9862-0
7. Mohanty, U.C., **Krishna K. Osuri**, S. Pattanayak and P. Sinha, 2012: An observational perspective of tropical cyclone activity over Indian seas in a warming environment, **Natural Hazards**, 63, 1319–1335, DOI 10.1007/s11069-011-9810-z.
8. **Osuri Krishna K.**, U.C. Mohanty, A. Routray and M. Mohapatra, 2012: Impact of Satellite Derived Wind Data Assimilation on track, intensity and structure of tropical cyclones over North Indian Ocean, **International Journal of Remote Sensing**, 33, 1627-1652, DOI:10.1080/01431161.2011.596849.
9. Mohanty, U.C., A. Routray, **Krishna K. Osuri** and S. K. Prasad, 2012: A Study on Simulation of Heavy Rainfall Events over Indian Region with WRF-3DVAR Assimilation and Modeling Systems, **Journal Pure and Applied Geophysics**, 169, 381-399, DOI 10.1007/s00024-011-0376-1.
10. Sujata Pattanayak, U. C. Mohanty and **Krishna K. Osuri**, 2012: Impact of parameterization of physical processes on simulation of track and intensity of tropical cyclone Nargis (2008) with WRF-NMM model, Scientific World Journal, Volume 2012, Article ID 671437, 18 pages, doi:10.1100/2012/671437.

11. A. Routray, **Krishna K. Osuri** and Makarand A. Kulkarni, 2012: A Comparative Study on Performance of Analysis Nudging and 3DVAR in Simulation of a Heavy Rainfall Event using WRF Modeling System, International Scholarly Research Network, Meteorology Volume 2012, Article ID 523942, 21 pages, DOI: 10.5402/2012/523942.
12. Mohanty,U.C., **Krishna K. Osuri** and S. Pattanayak, 2012: A study on high resolution mesoscale modeling systems for simulation of tropical cyclones over the Bay of Bengal, **Mausam**, 64, 117-134.
13. Routray, A., Mohanty, U.C., Krishna K. Osuri and S. K. Prasad, 2013: Improvement of Monsoon Depressions Forecast with Assimilation of Indian DWR Data using WRF-3DVAR Analysis System, J. Pure and Applied Geophysics, 170, 2329-2350, DOI: 10.1007/s00024-013-0648-z
14. **Osuri, Krishna K.**, U. C. Mohanty, A. Routray, M. Mohapatra, Dev Niyogi, 2013: Real-Time Track Prediction of Tropical Cyclones over the North Indian Ocean Using the ARW Model. **Journal of Applied Meteorology and Climatology**, 52, 2476–2492. doi: <http://dx.doi.org/10.1175/JAMC-D-12-0313.1>
15. Prasad, S. K., U.C. Mohanty, A. Routray, **Krishna K. Osuri**, S.S.V.S. Rama Krishna, D. Niyogi, and D. Pradhan, 2014: Impact of Doppler Weather Radar data on Thunderstorm Simulation during STORM Pilot phase – 2009, **Natural Hazards**, 10.1007/s11069-014-1250-0.
16. **Osuri Krishna K.**, U.C. Mohanty, A. Routray, and D. Niyogi, 2015: Improved Prediction of Bay of Bengal Tropical Cyclones through Assimilation of Doppler Weather Radar Observations, **Monthly Weather Review**, doi: <http://dx.doi.org/10.1175/MWR-D-13-00381.1>
17. M. M. Nageswararao M.M., U. C. Mohanty, S. Kiran Prasad, Krishna K. Osuri and S. S. V. S. Ramakrishna, 2015: Performance evaluation of NCEP climate forecast system for the prediction of winter temperatures over India, **Theor Appl Climatol**, DOI 10.1007/s00704-015-1588-6

**Under Review / Revision:**

18. Mohanty, U.C., **Krishna K. Osuri**, V. Tallapragada, F.D. Marks, S. Pattanayak, M. Mohapatra, S. G. Gopalakrishnan, and Dev Niyogi, 2014: A Great Escape from the Bay of Bengal 'Super Sapphire-Phailin' Tropical Cyclone - A case of improved weather forecast and societal response for disaster mitigation, Earth Interactions, (minor revision).
19. Routray A, UC. Mohanty, **Krishna K. Osuri**, SC. Kar and Dev Niyogi, 2015: Impact of Satellite Radiance Data on Simulations of Bay of Bengal Tropical Cyclones using the WRF-3DVAR Modeling System, IEEE Transactions on Geoscience and Remote Sensing, (in revision)
20. Nadimpalli R, **Krishna K Osuri**, S Pattanayak and U C Mohanty, 2015: Real time prediction of movement, intensity and storm surge of very severe cyclonic storm Hud-Hud over Bay of Bengal using High resolution dynamical models, Natural Hazards (under review)
21. Rajesh PV, S. Pattnaik, D Rai, **Krishna K Osuri**, U C Mohanty, H Baisya and S Tripathy, 2015: Role of land state in a high resolution mesoscale model for simulating the Uttarakhand heavy rainfall event over India, Journal of Earth System Science (under review)
22. Praveen Kumar P, **Krishna. K Osuri**, S. Pattanayak, U. C. Mohanty, S. Sil, and R. Nadimpalli, 2015: Observational perspective of SST changes during life cycle of tropical cyclones over Bay of Bengal, Natural Hazards (under review).

### **Reviewed Books and other publications:**

1. **Osuri Krishna K.**, Mohanty U.C., and Routray, A., 2013: Role of Surface Roughness Length on Simulation of Cyclone Aila, Monitoring and Prediction of Tropical Cyclones in the Indian Ocean and Climate Change, (book published by the Springer), ISBN 978-94-007-7719-4, pp 255 – 262.
2. Mohanty U.C., **Krishna K. Osuri**, and S. Pattanayak, 2013: Mesoscale Modelling for Tropical Cyclone Forecasting over the North Indian Ocean, Monitoring and Prediction of Tropical Cyclones in the Indian Ocean and Climate Change, (book publishing by the Springer), ISBN 978-94-007-7719-4, pp 274 – 286.
3. Routray A., **Krishna K. Osuri** and U.C. Mohanty, 2013: Impact of Radiance Data for Simulation of Track and Intensity of Tropical Cyclones using ARW-3DVAR, Monitoring and Prediction of Tropical Cyclones in the Indian Ocean and Climate Change, (book publishing by the Springer), ISBN 978-94-007-7719-4, pp 274 – 286.
4. **Osuri Krishna K.**, U.C. Mohanty, A. Routray and Makarand A. Kulkarni, 2010: Simulation of Tropical Cyclones Over Indian Seas: Data Impact Study Using WRF-Var Assimilation System, Indian Ocean Tropical Cyclones and Climate Change (book published by the Springer), Charabi, Yassine (Ed.), DOI: 10.1007/978-90-481-3109-9\_15, ISBN: 978-90-481-3108-2, p115 – 124.
5. Mohanty U. C., S. Pattanayak, A. J. Litta, A. Routray and **O. Krishna Kishore**, 2011: Simulation of Heavy Rainfall in Association with Extreme Weather Events: Impact on Agriculture, Challenges and Opportunities in Agrometeorology (book published by the Springer), 35 – 59, DOI 10.1007/978-3-642-19360-6\_3.
6. Dev Niyogi, S. Subramanian and **Krishna K. Osuri**, 2015: The Role of Land-Surface Processes on Tropical cyclones: Introduction to Land-Surface Models, Advances in Observations, Assimilation and Modelling of Tropical Cyclones (book published by the Springer), (in press).
7. Dev Niyogi, **Krishna K. Osuri**, S. Subramanian and U. C. Mohanty, 2015: The Role of Land-Surface Processes on extreme weather events: Land data Assimilation System, Advances in Observations, Assimilation and Modelling of Tropical Cyclones (book published by the Springer), (in press).
8. Routray A, **Krishna K. Osuri**, S. Pattanayak, and U. C. Mohanty, 2015: Introduction to Data Assimilation Techniques and Ensemble Kalman Filter, Advances in Observations, Assimilation and Modelling of Tropical Cyclones (book published by the Springer), (in press).
9. Mohanty UC, **Krishna K. Osuri** and Sujata Pattanayak, 2015: Tropical Cyclone Research over the North Indian Ocean: Impact of data and vortex initialization in High Resolution Mesoscale Models, Advances in Observations, Assimilation and Modelling of Tropical Cyclones (book published by the Springer), (in press).
10. Mohapatra M., T. N. Jha, S. Goel, C. Singh, N. Kumar, S. D. Kotal, K. Nagaratna, S. Tomar, S. Balachandran, **Krishna K Osuri**, A. Tyagi, B. K. Bandyopadhyay, O. P. Singh, Mohanty U. C., D. R. Sikka, Kusuma G. Rao and E. Rajagopala, 2011: Forecast Demonstration Project (FDP) for Improving Track, Intensity and Landfall of Bay of Bengal Tropical Cyclones Implementation of Pilot Phase, 2010-A Report, IMD, New Delhi, India.

### **National/international conference proceedings**

1. **Osuri Krishna K.**, U.C. Mohanty, S. Pattanayak, S. Gopalakrishnan, and D. Niyogi, 2014: Role of Land Surface Processes on land falling Tropical Cyclones and

- Monsoon Depressions over the Indian Region, 17A.6, 31st Conference on Hurricanes and Tropical Meteorology, 31 March-4 April 2014, San Diego, USA.
2. **Osuri Krishna K.**, Mohanty U. C., 2013: Implementation of LDAS over India: Impact on simulation of severe thunderstorms over India using high resolution ARW modeling system, *Advanced Dynamical Core Modeling for Atmospheric and Oceanic Circulations*, February, 18 – 23, 2013 at the NARL, Gadanki, Andhra Pradesh, India
  3. **Osuri Krishna K.**, Mohanty U. C., Dev Niyogi, Anil Kumar and A. Routray, 2012: Role of Land Surface Parameters on eye characteristics of cyclone Aila during landfall, *WMO technical notes on Second international conference on Indian Ocean tropical cyclones and Climate Change, 14 – 17 February 2012, New Delhi, India.*
  4. Mohanty U. C., **Krishna K Osuri**, and S. Pattanayak, 2012: Mesoscale modeling for tropical cyclone forecasting over the North Indian Ocean, *WMO technical notes on Second international conference on Indian Ocean tropical cyclones and Climate Change, 14 – 17 February 2012, New Delhi, India.*
  5. Mohanty U.C., **Krishna K Osuri**, S.K.Prasad and A. Routray, 2011: Impact of Indian DWR data on NWP model forecasts of extreme weather events, Proceedings of National seminar and Doppler radar and weather Surveillance, 17 – 18 November 2011, Hyderabad, India.
  6. Routray, A., Mohanty U. C., S. C. Kar, **Krishna K Osuri**, and S. Kiran Prasad 2011: Evaluation of the impact of DWR data for simulation of monsoon depressions using ARW-3DVAR assimilation system, Proceedings of National seminar and Doppler radar and weather Surveillance, 17 – 18 November 2011, Hyderabad, India.
  7. S. Kiran Prasad, Mohanty U. C., A. Routray, **Krishna K Osuri**, and D. Pradan, 2011: Impact of Doppler weather radar data on thunderstorm simulation during STORM pilot phase, Proceedings of National seminar and Doppler radar and weather Surveillance, 17 – 18 November 2011, Hyderabad, India.
  8. A., Routray, Mohanty U. C., and **Krishna K Osuri**, 2010: Simulation of Heavy Rainfall Events due to Intense Vortex over Indian Region: Impact of DWR Data, *Proceeding of International conference of Asia Oceania Geosciences Society (AOGS)-2010, 5-7 July 2010, Hyderabad, India.*
  9. **Osuri Krishna K.**, Mohanty U. C., A. Routray and Prasad S. K., 2010: Simulation of Tropical Cyclones Over Bay of Bengal: Impact of Dwr Data, *Proceeding of International AOGS-2010, 5-7 July 2010, Hyderabad, India*
  10. Kiran Prasad S, Mohanty U. C., **Krishna K Osuri**, and A. Routray, 2010: Simulation of Thunderstorms: Impact of Assimilation of Data Collected During STORM Pilot Phase 2009, *Proceeding of International conference of Asia Oceania Geosciences Society (AOGS)-2010, 5-7 July 2010, Hyderabad, India.*
  11. A. Routray, Mohanty U. C., and **Krishna K Osuri**, 2010: Simulation of Monsoon Depressions using WRF-3DVAR Data Assimilation System: Impact of DWR Data, *Proceeding of National Seminar on Doppler Radar and Weather Surveillance (DRaWS)-2010, 18-19 March, 2010 at India Meteorological Department, Chennai, India.*
  12. Sujata Pattanayak, Mohanty U. C., and **Krishna K Osuri**, 2010: Impact of Data Assimilation on Simulation of Tropical Cyclone Aila with WRF-NMM Modeling System, International conference of AOGS, 5-7 July 2010, Hyderabad, India
  13. **Osuri Krishna K.**, Mohanty U. C., and A. Routray, 2009: Simulation of Tropical Cyclones over Bay of Bengal during 2008-09 with WRF-ARW modeling system, *Proceeding of Second India Disaster Management Congress (IDMC-2), 4-6 November 2009, New Delhi.*
  14. A. Routray, Mohanty U. C., and **Krishna K Osuri**, 2009: Data Impact Study on Simulation of Monsoonal Heavy Rainfall Events over India, *Proceeding of Second India Disaster Management Congress (IDMC-2), 4-6 November 2009, New Delhi, India.*
  15. **Osuri Krishna K.**, Mohanty U. C., A. Routray, Makarand A. Kulkarni and R.K. Giri, 2009: Impact of Satellite Derived Winds on Simulation of Tropical Cyclones over Indian Seas

using WRF-3DVAR Assimilation System, *First international conference on Indian Ocean tropical cyclones and Climate Change, 9 – 12 March 2009, Muscat, Oman.*

16. **Osuri Krishna K.**, A. Routray, Mohanty U. C., and R. K. Giri, 2008: Impact of Satellite Derived Wind on the Simulation of Tropical Cyclones over Indian Seas using WRF-3DVAR Modeling System, Proceeding of International conference on Progress in Weather and Climate Modeling over India Region, 9-12 December 2008, NCMRWF, Noida, India.
17. A. Routray, Mohanty U. C., S. R. H. Rizvi, **Krishna K Osuri**, and D. Pradhan, 2008: Impact of Indian DWR Data on Simulation of Monsoon Depressions using WRF-Var Assimilation System, Proceeding of International conference on Progress in Weather and Climate Modeling over India Region, 9-12 December 2008, NCMRWF, Noida, India.



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